Federal Aviation Administration

Wichita DER Recurrent Seminar



April 20, 1999

<u>DER RECURRENT SEMINAR/GENERAL SESSION AGENDA</u> <u>APRIL 20, 1999</u>

0730-0815	Registration	
0815-0820	Opening/Introductions	
0820-0850	FAA Order 8110.37C, Designated Engineering Representative Guidance Handbook Changes	Ralph Meyer Aerospace Engineer, FAA Airworthiness Program Branch
0850-0920	FAA Order 8100.8, New DER Selection & Appointment Process	Jim Peterson, Associate Manager, Wichita ACO; and Sheri Robson, DER Coordinator, Wichita ACO
0920-0950	Type Certification Basis for Derivative and Changed Aviation Products	Charlie Riddle, Program Manager, Wichita ACO
0950-1020	Break	
1020-1050	JAA Post Type Certification Validation Procedures	Dale Bleakney, Program Manager Wichita ACO
1050-1120	Compliance Substantiation Reports	Phil Petty, Aerospace Engineer Wichita ACO
1120-1150	Conformity/A Dirty Ten Letter Word?	Jim Peterson, Associate Manager, Wichita ACO; and Joe Gonsalves, Manufacturing ASI, Wichita ACO/MIDO
1150-1210	Designee Training Team Report	Ralph Meyer, Aerospace Engineer FAA Airworthiness Program Branch
1210	Closeout/Questions	

Hey, Check this out....

- The new designee web page is online....
 - -http://av-info.faa.gov/dst
- Take a look and give us some feedback
 - -Ralph.Meyer@faa.gov
 - -Kevin.Kendall@faa.gov



DER HANDBOOK ORDER 8110.37C

Ralph Meyer AFS-610 405 954-7072 ralph.meyer@faa.gov



FORMAT CHANGES

- Text material changed to two column format
- Text material divided into eight chapters
 - Chapter 1 General
 - Chapter 2 Authority and Limitations
 - Chapter 3 Qualification Requirements
 - Chapter 4 Appointment
 - Chapter 5 Administration
 - Chapter 6 Certification Activities
 - Chapter 7 DER Oversight
 - Chapter 8 DER Guidance Material

NEW DEFINITIONS

- Definitions Added:
 - Applicant
 - Compliance Inspection
 - Executive Level
 - Field Approval



COMPANY DERS

- Policy added to address Company DERs assigned to:
 - Consortiums, Business Arrangements, Licensing Agreements, etc
 - Written Request from Company for expanded delegation will be sent to appointing ACO
 - If expanded delegation involves two geographic ACO areas of responsibilities, <u>ACOs will determine Managing ACO</u>



- Policy added to clarify management of DERs with dual appointments
 - Should be managed by same appointing ACO
 - When dual appointments involve two ACO geographic areas of responsibilities, <u>ACOs will</u> <u>determine managing ACO</u>



CANDIDATE AUTHORITY

- Clarification of DER Candidate Authority
 - Not authorized to approve data
 - May review and submit data to FAA Which demonstrate ability to function as a DER
 - Will **only** be delegated as a DER after demonstrating this ability to the ACO

USE OF "RECOMMEND APPROVAL"

- Clarification of DER use of "Recommend Approval"
 - Limited to delegated functions authorized on FAA Form 8110-25

EXPERIENCE CRITERIA

- Revised policy concerning experience working with FAA requirement
 - Significant experience in direct working relationship
 - Processing engineering data related to type approval
 - Must indicate applicant is versed in technical and procedural requirements



DER Administration

- Added requirement for DER advisor to be identified in DER appointment letter
- Added requirement for DER to be notified if DER advisor changes
- Added requirement for DER candidate advisor to be identified in acceptance of qualification letter
- Added requirement that DER candidate to be notified if advisor changes
- Revised FAA Form 1770-7 Requirements



DER Administration

- Defined contents of DER file
 - DER application
 - Appointment letter
 - Renewal letters
 - FAA Form 8110-3 submittals
 - Tracking forms
 - Evaluation forms
 - Records of discussion
- Incorporated conflict of interest policy previously found in FAA Notice 8110.63



DER Administration

- Added requirement for marking or flagging files of DERs determined to have potential conflict of interest
- Added requirement for written summary of conflict of interest oversight evaluation
- Added yes or no check blocks on DER Evaluation Form, Figure 14, Appendix 3, for executive level conflict of interest
- Added requirement for DER problems incurred by ACO other than appointing ACO to be reported in writing to appointing ACO



Certification Activities

- Added certification plan elements to be considered by DER
- Clarified requirement for DER to notify applicant when separate approvals will be required for noise or emissions
- Added requirement for appropriate airworthiness requirement to be referenced on on FAA Form 8110-3 when approving service documents
- Added provisions for compliance findings to foreign regulations

Repairs and Alterations

- Revised major repairs and alteration policy
- Revised minor repairs and alteration policy
- Added requirement for note on FAA Form 8110-3 to indicate approval does not include compliance inspection

Repairs and Alterations

- Added policy concerning approval of process specification associated with repairs
 - Should remind repair station to coordinate with FSDO
 - Should not approve generic process specifications
 - Should not approve shop practices



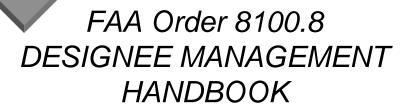
Limitations/Authorizations

- Revised Appendix 1, Limitations on DER Functions, in accordance with ACOMT recommendation
 - Limitations are now identified as things normally reserved for the FAA



REVISION C CHANGES

- Added specific requirements for structural DERs with a delegated function of fatigue analysis
- Rescinded authority to an appoint an applicant, who does not have a legal permanent residence in the US, as a DER
- Revised FedWorld access information
- Updated Appendix 4, ACO Addresses



The New AIR Standardized Designee Selection and Appointment Process



To develop a <u>unified</u> process that would ensure the <u>unbiased</u> selection and appointment of the <u>most</u> <u>qualified</u> engineering designee to represent the FAA Administrator in aircraft type certification activities



Objectives of Change

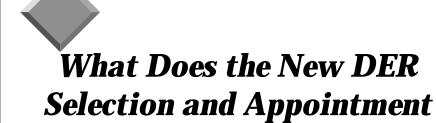
To better define the <u>roles</u> and <u>responsibilities</u> of all <u>key players</u> in the selection and appointment process



Objectives of Change

To develop a level of confidence in the integrity of the system such that acceptance by all FAA offices of an appointment decision is the norm.

Process Look Like?



What Does the New DER Selection and Appointment Process Look Like?

Key process improvements...

- → Defined appointment cycle time
- → Panel approach
 - Evaluation Panel decision/sign-off
 - Appeal Panel and defined process for appeals

What Does the New DER Selection and Appointment Process Look Like?

Key process improvements...

- **→** Documentation
 - Standardized application package
 - Clearly defined and consolidated appointment criteria
 - Designee Working Agreement

What Does the New DER Selection and Appointment Process Look Like?

New Key Players...

→ DER Coordinator

The FAA individual who initiates the formal selection, orientation, and appointment review process and coordinates all subsequent FAA actions

What Does the New DER Selection and Appointment Process Look Like?

New Key Players...

→ Evaluation Panel (EP)

◆ Two or more technical specialists (ASE/FTP) assigned to evaluate a designee applicant's qualifications against standards in order to determine appointment/ candidacy/denial and delegated authority as appropriate

What Does the New DER Selection and Appointment Process Look Like?

New Key Players...

→ Appeal Panel

◆ Two or more office managers and/or senior ASE/FTP assigned the task of determining if the Appointment Process was conducted properly in the event of an designee applicant's appeal of the FAA's decision



Selection and Appointment Process Overview

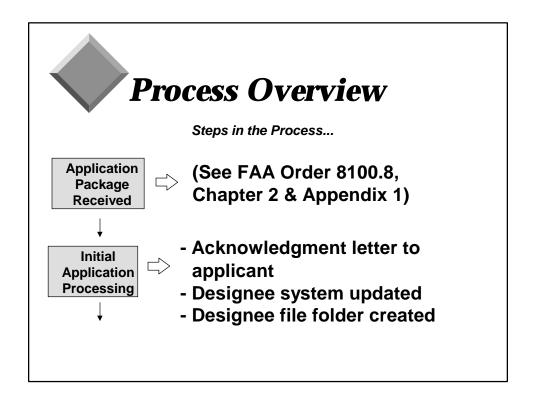


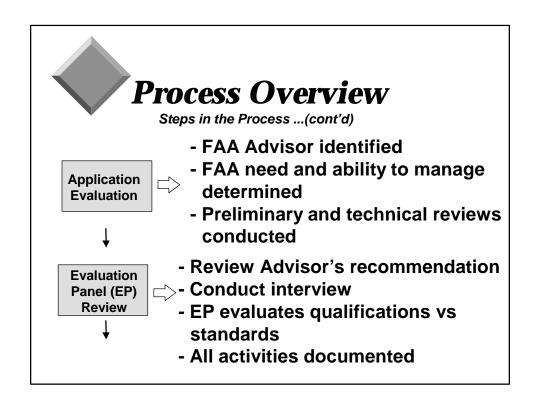
Process Overview

Steps in the Process...

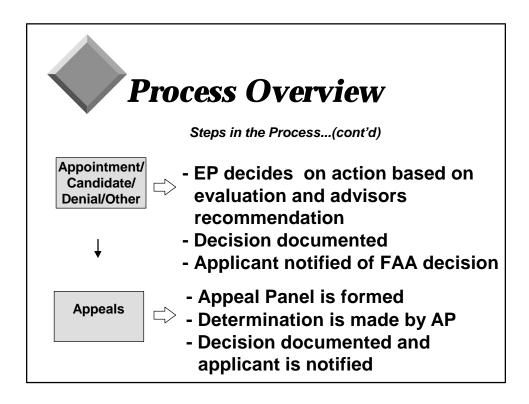
- **→** Application Package
- → Initial Application Processing
- → Application Evaluation
- → Evaluation Panel Review
- → Appointment/Candidate/Denial/Other
- → Appeals

Wichita DER Recurrent Seminar-April 20, 1999 FAA Order 8100.8, New Selection and Appointment Process





Wichita DER Recurrent Seminar-April 20, 1999 FAA Order 8100.8, New Selection and Appointment Process





Process Overview

Request for expanded delegations

Dual appointments

Transfer appointments

Wichita DER Recurrent Seminar-April 20, 1999 FAA Order 8100.8, New Selection and Appointment Process



Process Overview

Non-standard appointments...

- → Request for expanded delegations
 - ◆ For DERs, <u>all</u> requests to expand delegations will be reviewed by the FAA Advisor to determine whether an EP needs to be formed.



Process Overview

Non-standard appointments...

- → Dual DER appointments
 - ♦ Any requests for dual DER appointments (company/consultant) will be reviewed by the FAA Advisor to determine whether an EP needs to be formed.



Process Overview

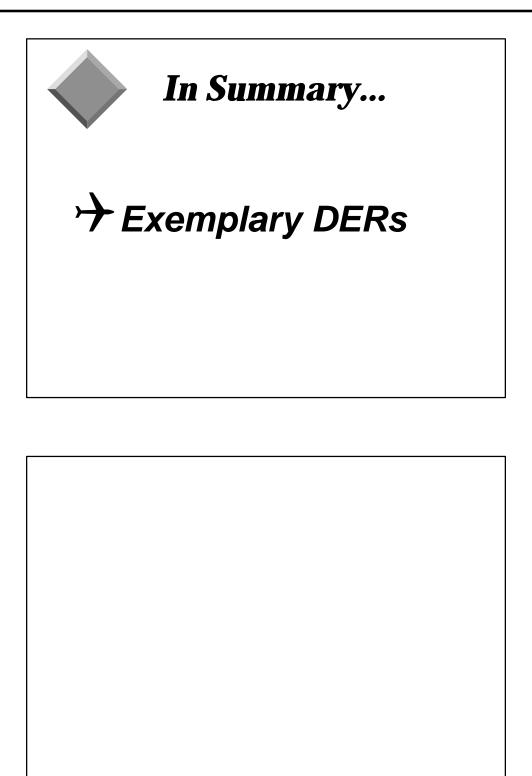
Non-standard appointments...

- Transfer appointments
 - When a designee moves to another ACO geographical area, the designee must re-apply to the new ACO. The new ACO has the discretion to use the EP process for these requests.



In Summary...

- → Teamwork
- > Improved communication & documentation
- > Defined process and accountability



Certification Basis for Changed Products

Charlie Riddle

Program Manager Wichita ACO

Introduction

- The way it used to be.
 - ♦ FAR 21.101
 - ◆ Applicant complies with regulations referenced in Type Certificate
- Things changed in 1990.
 - ◆ Action Notice 8110.23 Issued
 - ◆ Applicant encouraged to comply with latest regulations

Introduction (Cont.)

- Where we are now.
 - ♦ 1995 Order 8110.4(a) Issued
 - ◆ Action Notice 8110.23 policy incorporated into Order

Discussion

- FAR 21.101
 - ◆ 21.101 Designation of Applicable Regulations
 - ◆ 21.101(a) An Applicant for a Change to a Type Certificate must comply with *either*
 - ◆ The Regulations Incorporated by Reference in the Type Certificate or
 - → The Regulations in Effect on the Date of Application

Discussion (Cont.)

- ◆ 21.101(b) If the Administrator Finds that the proposed change consists of a new design or a substantially complete redesign and that the regulations incorporated in the Type Certificate do not provide adequate standards *Then* the applicant must comply with:
 - ◆ The applicable provisions in effect on the date of application and any special conditions to provide a level of safety equal to that established by the regulations incorporated in the Type Certificate.

Discussion (Cont.)

- Action Notice A8110.23 and Order 8110.4A
 - ◆ The concept of obtaining agreements with applicants to comply with later regulations was made standard practice.
 - ◆ Certification basis for changed product = certification basis of the model being changed + regulations effective on date of application for affected areas.
 - ◆ Requirements of later standards that would not increase the level of safety need not be considered.

Discussion (Cont.)

- Action Notice A8110.23 and Order 8110.4A
 - ◆ Regulations in type certificate may be applied if these regulations together with service experience provide a level of safety equivalent to the later standards.
 - ◆ Policy applied significant changes only.

What Does This Mean?

- The certification basis must be addressed by the applicant and FAA.
 - ◆ Can no longer automatically assume use of existing certification basis.
- Existing Certification basis establishes a level of safety for the product.
 - ◆ FAA cannot mandate an increase in the level of safety for a product.

What Does This Mean? (Cont.)

- ◆ The current amendment level on the date of application is the starting point.
- ◆ Applicant can volunteer to pick later amendment rules.
- ◆ The FAA is required to evaluate the existing certification basis to assure that the standards are adequate.
 - → This includes consideration of adverse service experience.
 - → Application of later amendments required if good cause exists.

What does the applicant need to do?

- Provide the FAA with a specific technical description of all changed areas and a certification plan.
- Provides a proposed certification basis. This may include voluntary compliance with later amendments.

What does the applicant need to do? (Cont.)

■ In the areas of change, and those affected by the change, document specific reasons in writing for any regulations not proposed at the latest amendment levels in effect at the time of application. This justification could involve similarity to existing approved designs, applicable satisfactory service experience, etc.

Next Steps

- 8110.4B is coming. No substantive changes in this area.
- Change to 21.101 is coming however that makes significant changes in this area.

Use of DER's in JAA Validation Programs

C. Dale Bleakney
FAA Program Manager
Wichita ACO

ACRONYMS

- → BAA Bilateral Airworthiness Agreement
- + BASA Bilateral Airworthiness Safety Agreement
- **→ CAI** Certification Action Item
- + CRI Certification Review Item
- → ICAO International Civil Aviation Organization
- + ICPTF International Certification Procedures Task Force
- → JAA Joint Aviation Authorities
- → TVP Type Validation Principles
- + JTVPD Joint Type Validation Procedures Document
- → SRD Significant Regulatory Difference

Definitions

Certificating Authority (CA)

The airworthiness authority of the state of the type certificate holder.

Validating Authority (VA)

The airworthiness authority of the state of import.

Significant Regulatory Difference (SRD)

Regulatory differences between the FAR and JAR that may require design changes or additional compliance substantiation by the exporting company.

Validation Item (VI)

Items where the Validating Authority will retain some degree of compliance finding..

AGENDA

- I. Background
- II. JAA Procedures
- III. Wichita ACO Procedures
- IV. Future Activities

Background

- → Bilateral Airworthiness Agreement
 - **★Formal Agreement Between National Authorities**
- → Joint Aviation Authorities
 - **★**Made up of a number of JAA Countries
 - **★Separate agreement from BAA**
 - **★JAA Validation not certification**

JAA Procedures (Cont'd)

- **→ Post Berlin**
 - **★**Responsible for development of new validation principles
 - + SRD does not equal involvement
 - + still allows/expects familiarization meetings
- **→ Joint Type Validation Principles**
 - **★**Training Currently in work
 - **★Procedures under development by FAA/JAA/Industry**

DER Roles/Responsibilities

- → Develop Means of Compliance
- → Review Design for Compliance with FAR's/JAR's
- → Communication with FAA/JAA
- → Complete 8110-3's with FAR's/JAR's
- → Other as defined by JWA/PPD
- **→ Post-TC Process Development**

Future Activities

- **→ JAA Procedure Training**
 - **★ACO/DER** Attendance Encouraged
 - **★Communicate Problems thru FAA**
- **→ JAR 21 is law**
- + JTSO to become effective 6/99
- **→ JSTC under development**

Wichita ACO Procedures

- **→ Office Procedures Encourage DER's to**Participate
- → 8110-37C allows DER's to find compliance to foreign requirements.
- → Coordinate all submittal to foreign governments thru the ACO. (Provide adequate schedule)

Wichita ACO Procedures

+ Undue Burden Papers required for foreign registered airplanes/STC's

Conclusion

- → JAA/FAA Relationship Is Evolving
- → DER Representation is vital to the success of validation programs
- → DER review of compliance with FAR's/JAR's is expected
- → Early definition of Means of Compliance is Vital
- → Keep ACO informed on problems

Conclusion (Cont'd)

- → Limited opportunity exists to go country to country for validation
- → FAA training for FAA/Industry is currently being conducted and will expand
- → JAA/FAA/Industry will participate in the training curriculum
 - **★**Will use the new TVP, Post TVP

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Questions/Discussion

COMPLIANCE SUBSTANTIATION

(GENERAL COMMUNICATION)

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COMPLIANCE SUBSTANTIATION

SLIDE # 1

PRESENTATION'S OBJECTIVE

- PROVIDE COMMUNICATION SUGGESTIONS
 - EXPEDITE APPROVALS
 - REDUCE: FOLLOW UP MEETINGS, ADDITIONAL DATA REQUESTS, UNEXPECTED TESTING, UNEXPECTED RESOURCE EXPENDITURES, SUBMITTAL REJECTIONS, etc.
 - REDUCE DESIGN RISK FROM MISUNDERSTANDINGS
 - CLARIFY EXPECTATIONS UP FRONT
 - NO COOKBOOK EXAMPLES
- WILL EMPHASIZE MOST COMMON OPPORTUNITIES FOR IMPROVEMENT
 - SCOPE LIMITED FOR 30 MINUTES

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COMPLIANCE SUBSTANTIATION

AGENDA

- RESPONSIBILITIES
 - APPLICANT
 - FAA
 - DER SOMETIMES HAS DUAL ROLE
- COMPLIANCE PLANS
- TEST PLANS
- MEETINGS
- COMPLIANCE REPORTS
- SUBMITTAL LETTERS
- FAA FORM 8110-3
- THOUGHTS TO PONDER
- SUMMARY

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COMPLIANCE SUBSTANTIATION

SLIDE #3

RESPONSIBILITIES

- APPLICANT
 - SHOW COMPLIANCE
 - REF SECTION 21.17(a)
- FAA
 - FIND COMPLIANCE
 - (WHEREVER FAA CHOOSES TO LOOK)
- TRANSLATION:
 - IT IS NOT FAA'S RESPONSIBILITY TO FIND WHERE THE NON-COMPLIANCES EXIST
 - IT IS APPLICANT'S RESPONSIBILITY TO SHOW NON-COMPLIANCES DON'T EXIST

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COMPLIANCE SUBSTANTIATION

CERT PLANS

- REFERENCES
 - FAA ORDER 8110.37C, PARA 600.b.
 - AC 21-40, PAR 2-2.b.
- CONSISTENT SHORTCOMINGS
 - HOW COMPLIANCE OF EACH SYSTEM BEING SHOWN FOR EACH RULE
 - INCLUDE SPECIFIC AMENDMENT LEVEL
 - MEANS OF COMPLIANCE
 - IF AC BEING USED, HELPFUL TO ADDRESS ITS CONTENT
 - ALL OR NOTHING, OTHERWISE FAA AGREEMENT AS ALTERNATIVE
 - RULE BY RULE (ACs?)
 - SYSTEM BY SYSTEM
 - MISSING WHAT FAA CONFORMITIES ARE NEEDED
 - MISSING CERT ACTIVITIES IN SCHEDULE
 - SUBMITTALS
 - FAA REVIEW TIME
 - NOTE ON SCHEDULES: IF APPLICANT ROUTINELY MISSES SCHEDULED TARGETS, DO NOT BE SURPRISED IF FAA APPEARS UNRESPONSIVE TO FUTURE SCHEDULES DUE TO LOSS OF SCHEDULE CREDIBILITY.

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COMPLIANCE SUBSTANTIATION

SLIDE # 5

TEST PLANS

- PRECISE CONFIGURATION BEING TESTED
- CLEAR CORRELATION OF TEST PROCEDURES TO RULES
 - SPECIFIC AMENDMENTS
 - ACs, ISSUE PAPERS, EQUIV. LEVEL OF SAFETY, POLICY LETTERS, etc., AS APPROPRIATE
 - PURPOSE EACH TEST PROCEDURE
- RULES COVERED MATCH AGREED CERT PLAN?
- PASS/FAIL CRITERIA CLEARLY DEFINED
 - AS OBJECTIVE AS POSSIBLE
 - AVOID GENERAL "OPERATES SATISFACTORILY", ETC..

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COMPLIANCE SUBSTANTIATION

VALID CERT TEST REMINDER

- TO BE VALID FAA TEST FOR CREDIT, NEED ALL FOUR:
 - ① FAA CONFORMED TEST ARTICLE

 FAA CONFORMED TEST SETUP

 FAA APPROVED TEST PLAN

 WITNESSED BY FAA REPRESENTATIVE

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COMPLIANCE SUBSTANTIATION

SLIDE #7

TEST REPORTS

- EVIDENCE OF FAA CONFORMITIES
 - COMPONENTS
 - ASSY
 - INSTL
 - SETUP
- FAA WITNESSING
- TEST PLAN
- SPECIFIC RESULTS
 - NOT JUST GENERAL PARAGRAPH
- SUMMARY
 - DID EVERYTHING PASS
 - ANY ANOMALIES
 - IF ANOMALIES, WHY ARE THEY ACCEPTABLE

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COMPLIANCE SUBSTANTIATION

MEETINGS

- DOES EVERYONE KNOW OBJECTIVE(S) OF MEETING AT BEGINNING
 - NOT JUST AGENDA TOPICS
 - HOW WILL PARTICIPANTS KNOW WHEN DONE?
- PROPER ATTENDEES
- DID ATTENDEES HAVE OPPORTUNITY TO PREPARE (DID THEY KNOW OBJECTIVE)
- DOES EVERYONE UNDERSTAND OUTCOME AND ARE ACTION ITEMS CLEAR
- IS SOMEONE MODERATING TO KEEP FOCUSED

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COMPLIANCE SUBSTANTIATION

SLIDE #9

COMPLIANCE REPORTS

- AN ABUNDANCE OF BAD EXAMPLES IN PAST COUPLE OF YEARS (WILL ONLY ADDRESS GENERALLY)
- JUST IN CASE YOU WERE CONFUSED
 - DESCRIBING SYSTEM FEATURES THAT DO NOT EXIST IN FINAL CONFIGURATION IS INAPPROPRIATE
 - SIMPLY REPEATING BACK REQUIREMENT IN FORM OF STATEMENT IS NOT SUFFICIENT TO SHOW COMPLIANCE
 - SAYING "WILL BE SHOWN" OR OTHER IOUS IN FINAL COMPLIANCE REPORT INAPPROPRIATE
 - INAPPROPRIATE TO STATE TESTING IS COMPLETE AND SUCCESSFUL PRIOR TO THE TESTING EVEN BEING PERFORMED
 - REFER TO SECTION 21.2 ON FALSIFICATION OF APPLICATION, REPORTS, AND RECORDS

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COMPLIANCE SUBSTANTIATION

COMPLIANCE REPORTS

- JUST IN CASE YOU WERE CONFUSED (CONTINUED)
 - INAPPROPRIATE TO TAKE CREDIT FOR CERT TESTING NOT PROPERLY PERFORMED (SEE SLIDE #7)
 - AGAIN, REFER TO SECTION 21.2
 - INAPPROPRIATE TO JUST FILL WITH BUZZWORDS WITHOUT PROVIDING LOGICAL ARGUMENT WITH SUBSTANTIATING DATA
 - ESPECIALLY WHEN BUZZWORDS USED INAPPROPRIATELY
 - BEST WHEN COMPLIANCE DISCUSSION IS RELATED TO THE SPECIFIC RULE BEING ADDRESSED RATHER THAN UNRELATED RULE THE AUTHOR FEELS MORE COMFORTABLE WITH
 - BEST WHEN COMPLIANCE DISCUSSION IS RELATED TO THE MODEL UNDER CONSIDERATION
 - BE CAUTIOUS OF HASTY CUT AND PASTE

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COMPLIANCE SUBSTANTIATION

SLIDE #11

COMPLIANCE REPORTS

- SUFFICIENT SUBSTANTIATION
 - PREFER EACH RULE TEXT INCLUDED (PROPER AMDT.)
 - ADDRESS EACH SUBPARA SEPARATELY
 - UNDERSTAND FULL SCOPE OF RULE
 - CLEAR, COMPLETE, LOGICAL SUBSTANTIATION
 - CLEAR TRAIL OF BREAD CRUMBS
 - AVOID SCAVENGER HUNTS
 - DON'T JUST SAY IT COMPLIES, EXPLAIN <u>HOW</u> IT COMPLIES
 - BE SPECIFIC
 - HINT: IF IT CAN BE WRITTEN WITHOUT KNOWING DESIGN/TESTING SPECIFICS, PROBABLY TOO GENERAL

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COMPLIANCE SUBSTANTIATION

COMPLIANCE REPORTS

- COMPLETE DISCUSSIONS
 - WHEN UTILIZING TSO APPROVALS, EXPLAIN HOW SPECIFIC ASPECTS OF TSO SUPPORTS THE WAY ITEM WAS IMPLEMENTED FOR THIS PROJECT
 - WHEN UTILIZING DO-160 TYPE OF TESTING FOR ENVIRONMENTAL, DON'T JUST SAY "PASSED DO-160"
 - RTCA DO-160D INCLUDES OVER TWENTY DIFFERENT TESTS (SECTIONS), EACH WITH AN OPTION FOR VARIOUS TEST CATEGORIES (X MEANS DIDN'T DO)
 - FOR EACH PIECE OF EQUIPMENT/SYSTEM
 - WERE ALL APPROPRIATE TEST SECTIONS PERFORMED?
 - ARE OMITTED TESTS JUSTIFIED?
 - WERE THEY PERFORMED AS VALID CERT TESTS? (SEE SLIDE #7)
 - IS TEST CATEGORY FOR EACH TEST APPROPRIATE FOR THE WAY EQUIPMENT INSTALLED AND UTILIZED ON SPECIFIC PROJECT SUCH AS MAX ALTITUDE, TEMP, etc.? (SUBSTANTIATE WITH SPECIFIC ON YOUR INSTALLATION)
 - ARE AIRCRAFT LIMITATIONS PROVIDED ACCORDINGLY?

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COMPLIANCE SUBSTANTIATION

SLIDE # 13

SUBMITTAL LETTERS

- STATE WHY YOU ARE SUBMITTING IT
 - WHAT ACTION(S) ARE YOU REQUESTING FROM FAA
 - ENSURE THEY ARE REASONABLE, ESPECIALLY TIMING
 - NOTE: FAA DOES NOT HAVE ACCESS TO CRYSTAL BALL AND CANNOT REVIEW DATA THAT HAS NOT YET BEEN SUBMITTED (i.e. DON'T REQUEST TIA WITHOUT SUBMITTING DATA)
 - NOTE: FAA ALSO DOES NOT HAVE ACCESS TO TIME MACHINE AND CANNOT MEET TARGET DATES THAT ARE PRIOR TO SUBMITTAL DATE
- IF RELATED TO ANOTHER SUBMITTAL, HELPFUL TO CLEARLY INDICATE
 - SUPERSEDES
 - PARTIAL WITH
- PLAIN ENGLISH ALWAYS ACCEPTABLE

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COMPLIANCE SUBSTANTIATION

FAA FORM 8110-3

- REV LETTERS OF DATA
- ADEQUATE DER COVERAGE
- MULTIPLE DERs (& MULTI-FUNCTION)
 - WHO IS SIGNING FOR WHAT
 - SPECIFIC RULES, SPECIFIC DATA, SPECIFIC ASPECTS
 - WHAT IS NOT COVERED
 - DON'T JUST SAY "THIS ONLY COVERS ELEC"
- PURPOSE OF DATA (NOT PURPOSE OF SUBMITTAL)
 - WHY DOES THAT PARTICULAR DATA EXIST
- FAA FORM 8110-3 LIST MATCH ATTACHED DATA
 - REVISION LEVEL & S/W VERSION
- WHEN SUBMITTING FOR CONFORMITY ONLY, LIMIT RULES AND APPROVAL SCOPE
 - TYPICALLY ONLY 1301(a) FOR SYSTEMS & EQUIPMENT
 - LISTING LOTS OF RULES WITHOUT SUBSTANTIATION INAPPROPRIATE (SECT 21.2)
 - TYPICAL TO NOTE "FOR PURPOSES OF CONFORMITY ONLY"

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COMPLIANCE SUBSTANTIATION

SLIDE # 15

THOUGHT TO PONDER (#1)

- AS AN OVERSIGHT AGENCY FAA CAN'T REVIEW EVERYTHING IN EQUAL DEPTH
 - DEVELOP LEVEL OF CONFIDENCE BASED ON SAMPLING/SPOT CHECKING
 - IF SAMPLING INDICATES SUBPAR RESULTS,
 NATURALLY FEEL COMPELLED TO SAMPLE MORE,
 AND MORE, AND MORE . . .
 - CONSIDER CREDIBILITY ASPECTS
 - LEVEL OF DELEGATION OFTEN BASED ON CREDIBILITY & RECENT EXPERIENCES

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COMPLIANCE SUBSTANTIATION

THOUGHT TO PONDER (#2)

- HUMAN NATURE OF REVIEWER: IF SIMPLE THINGS SLOPPY (I.E. SPELLING, GRAMMAR, ORGANIZATION, CLEAR COMMUNICATION, ETC.), LEADS TO QUESTION IF IMPORTANT THINGS ARE SLOPPY AS WELL (I.E. UNDERSTANDING OF RULE, DESIGN ITSELF, TESTING, ETC.), AND POSSIBLY NON-COMPLIANT
- CONSIDER CREDIBILITY ASPECTS
 - LEVEL OF DELEGATION OFTEN BASED ON CREDIBILITY & RECENT EXPERIENCES

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COMPLIANCE SUBSTANTIATION

SLIDE # 17

SUMMARY

- GENERAL THEMES
 - BE CLEAR, ACCURATE AND COMPLETE IN COMMUNICATIONS
 - QUALITY IS IMPORTANT
- THESE THINGS CAN AFFECT
 - APPROVAL TIMES
 - WORKING RELATIONSHIP WITH FAA
 - SOMETIMES CREDIBILITY AND ULTIMATELY LEVEL OF DELEGATION
- QUESTIONS?

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COMPLIANCE SUBSTANTIATION

CONFORMITY

A DIRTY TEN LETTER WORD?

ENGINEERING AND
MANUFACTURING
RESPONSIBILITIES AND
FUNCTIONS RELATIVE TO
FAA INSPECTION AND TEST

FAA ORDER 8110.4A CFR 14 PART 21.33

Wichita DER Recurrent Seminar-April 20, 1999 Conformity Inspections

PRESENTERS



◆ Associate ACO Manager, Systems & Propulsion

JOE GONSALVES

♦ Manufacturing Inspection Specialist

ENGINEERS
AND
DESIGNATED
ENGINEERING
REPRESENTATIVES

Engineering's Role in FAA Conformity Inspections

- It is Engineering's responsibility to determine:
 - ♦ IF an FAA Conformity Inspection is required
 - **♦** <u>WHEN</u> an FAA Conformity Inspection is to be requested

How do I know if an FAA Conformity Inspection is required?

- Are you collecting data to show compliance with an FAA Airworthiness Standard (FAR)?
 - **♦**NO
 - **➣**An FAA Conformity Inspection is not needed.
 - **♦YES**
 - **≫**An FAA Conformity Inspection is required. (Refer to 14CFR 21.33.)

Wichita DER Recurrent Seminar-April 20, 1999 Conformity Inspections

How do I know when to request an FAA Conformity Inspection?

If parts will be fabricated in-house

♦ BEFORE you release the work order.

→ If parts will be purchased

♦ BEFORE you release the purchase order.

Best Practices for Engineers

- Review with your FAA Counterpart
 - **♦** Design concepts, including fabricated and purchased parts
 - **♦** Applicable airworthiness standards
 - **♦** Proposed means of compliance (MOC)
 - **♦** For test MOC, discuss FAA Conformity Inspection needs and processes

Best Practices for Engineers

If you are a DER, review and approve the top assembly drawing and submit to the FAA via FAA Form 8110-3, along with the FAA Form 8120-10, Request for Conformity

FAA AVIATION SAFETY
INSPECTORS
MANUFACTURING INSPECTORS
OR
MANUFACTURING DESIGNEES

FUNCTIONS AND RESPONSIBILITIES

CONDUCT INSPECTIONS TO
DETERMINE THE APPLICANT'S
COMPLIANCE TO 21.33 (b)
BE ALERT FOR ANY DESIGN
FEATURE WHICH DOES NOT
APPEAR TO COMPLY WITH
THE PERTINENT REGULATION

STATEMENT OF CONFORMITY SUBMITTAL

FAA Form 8130-9, Statement of Conformity, should be submitted to the FAA prior to the start of FAA Conformity Inspections

The applicant or an authorized

The applicant or an authorized individual should sign the Statement of Conformity

Wichita DER Recurrent Seminar-April 20, 1999 Conformity Inspections

STATEMENT OF CONFORMITY

(FAA Form 8130-9)

The Manufacturing Inspector, or designee(s) should not conduct an FAA Conformity Inspection without receiving proper documentation

FAA CONFORMITY INSPECTIONS

The FAA Manufacturing Inspector or designee is responsible for conducting inspections to determine the applicant's compliance to FAR 21.33(b)

Conduct conformity inspections to assure that the article conform to the required design drawings and specifications

TEST ARTICLES

The applicant must request an FAA conformity inspection of the test specimen <u>and</u> test setup to assure conformance to the engineering drawing(s) and test plan. (Ref. FAA Order 8110.4A, Chapter 2, TYPE CERTIFICATION PROCESS, Paragraph 15.f.(4)(a), on page 29)

FAA CONFORMITY DETERMINATION

In witnessing conformity inspections, the manufacturing inspector should consider the following areas:

Wichita DER Recurrent Seminar-April 20, 1999 Conformity Inspections

MATERIALS

Were raw materials used in the fabrication process in conformity with the design data?

Is evidence available to assure that chemical and/or physical properties were identified and checked as appropriate?

Is there documented evidence to show tractability from raw material to the prototype part?

Are there any part or process deviations recorded against the submitted design data (including material review dispositions)?

PROCESSES AND PROCESSING

Is there a process specification for each special/manufacturing process?

Has the process specification been submitted for FAA Engineering, Manufacturing Inspection review?

ADEQUACY OF DRAWINGS AND RELATED CHANGE RECORDS

Can the part be produced and inspected using the information on the drawing?

Are drawing tolerances practicable and attainable under production conditions?

What evidence supports this?

CONFORMITY DISCREPANCIES

A system to disposition nonconformity's should should be documented and agreed upon by the FAA and the applicant prior to the start of the project



FAA/INDUSTRY DESIGNEE TRAINING TEAM

DESIGNEE TRAINING NEEDS SURVEY

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Briefing Purpose

- → Explain why the FAA/Industry Designee Training Team was formed.
- Highlight the findings from a survey to determine whether designees need to attend FAA/AIR courses.
- → Provide an opportunity for questions and comments from FAA designees, AIR employees, and industry about the survey findings.



Briefing Purpose (continued)

What do we need from you as a listener? At the completion of the briefing, let us know whether:

- The survey findings are consistent with what your experience tells you.
- You see any disconnects between the survey findings and your experience.

Please ask questions and tell us your concerns about designee training needs, but <u>not</u> about how training would be delivered.

Overview of Team Tasks

- → FAA/Industry Designee Training Team was chartered in September 1998 as a result of conference discussions between the FAA and Aviation Industry on how to improve certification processes.
- → Team was chartered to determine whether designees need the same training that is provided to ASEs and ASIs.
- → In September 1998 the team began a survey process to identify designee training needs.
- Other team tasks will address delivery options for validated training needs and how to improve designee seminars.



Survey of Designee Training Needs

- → The needs assessment survey represents a "snapshot" of designee training needs.
- The team recommendations about designee training needs will also be based on discussions with the FAA, designees, and industry to clarify the survey findings.
- This briefing is one opportunity for discussion.

Survey of Designee Training Needs (continued)

- → The purpose of the training needs survey was to determine:
 - Whether designees report a strong need for the same FAA training that is provided to ASEs and ASIs.
 - Which courses FAA and industry personnel report as designee training needs.
 - The trends in knowledge and skill level training needs reported in two, open-ended survey questions.

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- → Survey respondents were asked to rate 48 training selections.
- Training selections included FAA and out-of-agency instructorled courses, initial and recurrent designee seminars, and engineering and general topic IVTs.
- → Survey respondents used a four-point scale to differentiate "essential" and "recommended" training from "nice-to-have" and unnecessary training.
- → Survey included two, open-ended questions to identify training needs specific to international certification topics and other needs not addressed by existing training.

Survey of Designee Training Needs (continued)

- The training needs survey was distributed to 628 individuals:
 - 455 Designees
 - 109 FAA personnel
 - 64 Industry personnel.
- → The overall survey return rate was 54%:
 - 248 Designees
 - 69 FAA employees
 - 25 Industry personnel.



Survey Findings

Overall, the survey findings indicate:

A strong designee interest in attending the Indoctrination and Part 21 courses.

A strong designee interest in attending the types of training they typically attend now (designee seminars, some Indoc/Part 21).

Less designee interest in attending AIR job functions courses (except for DARs/ODARs).

A strong need for additional information and training on international certification topics.

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Survey Findings: DERs

Training rated as "recommended" or "essential" by at least 50% of DER respondents:

Initial DER Standardization Seminar	84%
DER Recurrent Seminar	78%
Indoctrination Course	74%
Part 21 Course	56%
Repairs and Modifications IVT	53%

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Survey Findings: DMIRs

Training rated as "recommended" or "essential" by at least 50% of DMIR respondents:

Part 21 Course	87%
DMIR Conformity Export Class 2 and 3 Only Seminar	87%
DMIR Export Class 1 and Airworthiness Certificate	65%
Initial Designee Standardization Seminar	57%
Suspected Unapproved Parts Seminar	54%
AS 9000: Aerospace Basic Quality System Standard	50%
IVT	

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Survey Findings: ODARs/DARs

Training rated as "recommended" or "essential" by at least 50% of DAR / ODAR respondents:

Part 21 Course	79%
Designated Airworthiness Rep. Seminar	74%
Suspected Unapproved Parts Seminar	59%
Inspector Job Functions Course	58%
Indoctrination Course	56%
Introduction to Order 8130.28 (IVT)	53%
Initial Designee Standardization Seminar	50%

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Survey Findings: Some Comparisons

There are similarities and differences* in perspectives among ASEs, ASIs, and designees about what is <u>essential</u> AIR training for designees:

	<u>DERs</u>	<u>ASEs</u>
*Indoctrination Course	49%	17%
Part 21 Course	21%	20%
	<u>DMIRs</u>	<u>ASIs</u>
Indoctrination Course	26%	22%
* Part 21 Course	54%	28%
Inspector Job Functions	26%	19%

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Survey Findings: Some Comparisons (continued)

There are similarities and differences in perspectives among ASEs, ASIs, and designees about what is <u>essential</u> AIR training for designees:

	O/DARs	<u>ASIs</u>
*Indoctrination Course	44%	24%
Part 21 Course	44%	30%
Inspector Job Functions Course	29%	18%
	<u>DOAs</u>	<u>ASEs</u>
*Indoctrination Course	61%	10%
Part 21 Course	28%	30%

..



Eighty-four designees commented on the need for training on international certification topics. The majority of these comments came from DERs. Examples of comments include:

- Significant differences between FARs and JARs and their status.
- FAA/JAA procedures.
- How joint certification is handled (roles, responsibilities, time lines, etc.).
- Foreign certification of TSO equipment requirements and procedures by country.
- Short course on bilateral agreements issues and topics.
- Aircraft certification/modifications in foreign countries.

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Sixty-eight designees commented on additional training needs. The majority of these comments came from DERs. Examples of comments include:

- Materials qualification requirements based on certification basis for burn, heat release, and smoke density testing.
- New rules and upcoming rules.
- Guidance in dealing with mass-produced consumer grade equipment such as VCRs, sound systems, etc.
- Case histories on safe life, damage tolerances, and fault tolerance and failure modes.
- Protocol of TC/STC process.

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Survey Respondents

- → 45% of designee respondents have been a designee for three years or less.
- →31% of FAA respondents have worked with designees for three years or less.
- The majority of designee respondents came from the Transport Airplane Directorate. The fewest designee respondents came from the Engine and Propeller Directorate.

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Survey Feedback

Now, let us know whether:

- The survey findings are consistent with what your experience tells you.
- You see any disconnects between the survey findings and your experience.

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